

Application/Control Number: 10/700,085

Page 2

Art Unit: 2800

CImpto

032106

PY

Art Unit: 2800

**LISTING OF THE CLAIMS:**

**Claim 1 (Currently Amended)** A semiconductor wafer comprising:  
a semiconducting or non-semiconducting substrate;  
a buried insulator layer located on an upper surface of the substrate;  
an intermediate adhesion layer located on an upper surface the buried insulator layer; and  
a Ge-containing layer having an exposed upper surface located on an upper surface of the intermediate adhesion layer, wherein said intermediate adhesion layer provides a bond between said buried insulator layer and said Ge-containing layer and eliminates Ge-oxide from said wafer and said Ge-containing layer represents the uppermost layer of the wafer.

**Claim 2 (Withdrawn)** The semiconductor wafer of Claim 1 wherein a surface of the Ge-containing layer that is in contact with the intermediate adhesion layer is roughened.

**Claim 3 (Original)** The semiconductor wafer of Claim 1 wherein said substrate is a semiconducting substrate which comprises a semiconductor selected from the group consisting of Si, SiC, SiGe, SiGeC, Ge, GaAs, InAs, InP and other III/V or II/VI compound semiconductors.

**Claim 4 (Original)** The semiconductor wafer of Claim 1 wherein said substrate is a Si-containing semiconductor substrate selected from the group consisting of Si, SiGe, SiC, SiGeC, Si/Si, Si/SiC, Si/SiGeC and preformed silicon-on-insulators.

**Claim 5 (Original)** The semiconductor wafer of Claim 1 wherein said substrate comprises strained layers, unstrained layers or a combination thereof.

**Claim 6 (Original)** The semiconductor wafer of Claim 1 wherein said buried insulator layer is a crystalline or non-crystalline oxide, nitride or combination thereof.

**Claim 7 (Original)** The semiconductor wafer of Claim 1 wherein said buried insulator layer comprises SiO<sub>2</sub>.

**Claim 8 (Withdrawn)** The semiconductor wafer of Claim 1 further comprising a buried diffusive mirror located in between the buried insulator layer and another buried insulator.

**Claim 9 (Withdrawn)** The semiconductor wafer of Claim 8 wherein the buried diffusive mirror is corrugated.

**Claim 10 (Withdrawn)** The semiconductor wafer of Claim 9 wherein the buried diffusive mirror comprises a metal.

**Claim 11 (Original)** The semiconductor wafer of Claim 1 wherein said intermediate adhesion layer is a Si material.

**Claim 12 (Original)** The semiconductor wafer of Claim 11 wherein said Si material is single crystal Si, polycrystalline Si, amorphous Si, epitaxial Si or combinations and multilayers thereof.

**Claim 13 (Original)** The semiconductor wafer of Claim 1 wherein said Ge-containing layer is a pure Ge layer.

**Claim 14 (Original)** The semiconductor wafer of Claim 1 wherein said Ge-containing layer is a thin layer having a thickness from about 1 nm to about 1000 nm.

Art Unit: 2800

**Claim 29 (Original)** A semiconductor structure comprising at least the semiconductor wafer of Claim 1 and at least one device or circuit located thereon.

**Claim 30 (Original)** The semiconductor structure of Claim 29 wherein the device is a Ge-photodetector.

**Claim 31 (Original)** The semiconductor structure of Claim 29 wherein the circuit is a Si-containing circuit.

**Claim 32 (Original)** The semiconductor structure of Claim 29 wherein said device or said circuit is monolithically integrated.